

Magic Sand

Discovering the properties of sand!



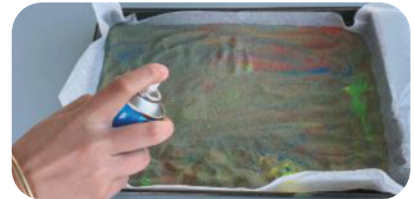
MAKING MAGIC SAND

You will need:

- Coloured sand
- Fabric protector spray (scotch guard)
- Large vase or bowl of water
- Shallow container
- Wax paper or tin foil
- Spoon

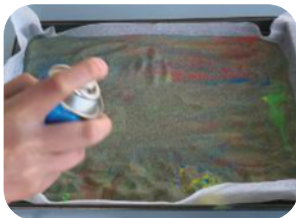
Instructions:

1. Begin by lining your shallow container with wax paper. Spread the coloured sand onto it. In a well-ventilated area, spray a heavy coat of fabric protector spray onto the sand.



2.

After 10 minutes or so, stir the sand around and spray another coat onto it. Make sure all the sand is coated. You can repeat this again if you feel like the sand needs more.



3.

Leave the sand to completely dry for about 1 hour.



4.

Pour magic sand into a container and it is now ready to experiment with!



DID YOU KNOW?

The coating on magic sand is like Scotch guard, which is sprayed on fabric to protect it from stains. Magic sand was originally developed as a way to trap oil spilled from oil tankers near the shore. The idea was that when magic sand was sprinkled on floating petroleum, it would mix with the oil and make it heavy enough to sink. This would prevent the oil from contaminating beaches. However, it is not being used for this purpose, perhaps because of the expense of making magic sand.

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How can something submerged in water stay dry?

When ordinary sand gets wet, the result is a clumpy mess. However, "Magic Sand" begins as normal looking sand, until it's coated with a substance that repels water. This special coating keeps the sand dry even after it has been dumped into a container of water.

MAGIC SAND IN ACTION!

You will need:

- Magic sand
- Drinking cup or vase
- Medium size container
- Plastic soda bottle
- Vegetable oil or mineral oil
- Food colouring



Instructions:

1.

Fill a cup 3/4 full with water.

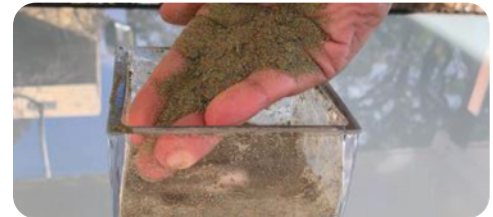
2.

Slowly pour Magic sand in a continuous stream into the water. Look closely at the sand. What is that silver-like coating on the sand?



3.

Pour the water off from the sand into a second container. Touch the sand and see what you find. To your amazement, the sand is completely dry!



To better understand how Magic Sand works, try this demonstration:

1. Fill a plastic soda bottle 3/4 full with water.
2. Fill the remaining portion of the bottle with vegetable oil or mineral oil. Immediately, the students will notice that the oil and water do not mix.
3. Add a few drops of food coloring to the mixture. Notice how the food coloring only colours the water and not the oil... even when the bottle is shaken.

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HOW IT ALL WORKS!

This is a great experiment to learn about the properties of substances that are hydrophobic and hydrophilic.

Hydrophobic substances do not mix with water. The term “water-fearing” is often used to describe the word hydrophobic. Hydrophilic substances, on the other hand, are “water-loving.”

Notice how the drops of food colouring colour only the water and not the oil. Since oil is hydrophobic, the oil did not mix with the food colouring or the water.

So, how does Magic sand work?

The surface of sand grains is made wet by water, which means that water molecules are attracted to sand grains. Remember, this water-loving property of sand is called a hydrophilic property. Magic sand is regular sand that has been coated with an oil-like substance that is water-hating, or hydrophobic.

HOW TO MAKE MAGIC SAND WET?

In your container of Magic sand and water, add a couple of drops of washing-up detergent and mix with a spoon. See what happens to the magic sand? The detergent cleans the sand, removing the oil coating- making it like normal sand again!

